



Materials Engineering Branch

TIP*



No. 053 Adhesion of White Aeroglaze to Black Aeroglaze

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There are occasions in spacecraft technology when thermal control considerations require that a white paint be applied directly over a black painted surface. Aeroglaze Z306 flat black paint is often used on spacecraft hardware over a Aeroglaze 9924 primer. A frequently used good high gloss white paint is Aeroglaze A276.

To check the adhesion of the A276 to the Z306 square aluminum sheet samples with a surface area of 2.0 in² were coated with the 9924 primer, followed by the Z306 and topped with the A276. After curing at room temperature, the coatings were tested for adhesion by the standard tape test with no peeling evident.

Then they were thermally cycled in vacuum for 12 cycles between -20°C and +60°C. After thermal cycling they were subjected to the tape test again without exhibiting any peeling. Then the samples were scribed with an X to bare metal and given the tape test once again and still did not peel. These tests indicate that the A276 II can be applied directly to the Z306 with good adhesion for spacecraft applications.

It should be noted that A276 is not a particularly good choice as a thermal control paint as it is easily degraded.